

COLUMNNEA BIVALVIS (GESNERIACEAE), A NEW SPECIES
FROM THE EASTERN SLOPES OF THE ECUADORIAN ANDES

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ABSTRACT

Recent field expeditions to the eastern slopes of the Ecuadorian Andes and revisionary work on *Columnea* (Gesneriaceae) section *Collandra* have resulted in the discovery of a new plant species. The new species, ***Columnea bivalvis***, is distinguished by the presence of two pendent clasping bracts that enclose a single axillary flower.

RESUMEN

Expediciones recientes a las estribaciones orientales de los Andes Ecuatorianos, y el trabajo de revisión de la sección *Collandra* del género *Columnea* (Gesneriaceae) permitieron el descubrimiento de una nueva especie de planta. La nueva especie, ***Columnea bivalvis***, se distingue por tener dos brácteas colgantes que se tocan por sus márgenes encerrando una única flor axilar.

KEY WORDS: *Collandra*, *Columnea*, Gesneriaceae, Ecuador, Taxonomy, Flora of Ecuador

INTRODUCTION

The genus *Columnea* belongs to the New World subfamily Gesnerioideae. It is the most diverse genus in the subfamily with over 200 species (Skog & Boggan 2006; Weber 2004; Burt & Wiehler 1995). The subdivision of *Columnea* sensu lato into sections or into segregate genera has caused much controversy and taxonomic confusion (Kvist & Skog 1993; Wiehler 1973, 1983). We recognize the classification based on recent phylogenetic hypotheses that strongly support the monophyly of *Columnea* (Smith 1994; Smith & Sytsma 1994; Clark et al. 2006) and non-monophyly for segregate genera. Thus, the sectional classification outlined in Kvist and Skog (1993) is more desirable as an informal classification until segregate clades can be evaluated phylogenetically.

The new species described here belongs to *Collandra*, the most diverse section in *Columnea*. The following characters are useful for recognizing the species within this section: dorsiventral shoots with anisophyllous subsessile leaves and ovoid (non-globose) berries. In this paper we describe a new species of *Columnea* that is known from two populations between 1800 and 2350 m from the eastern slopes of the Ecuadorian Andes.

TAXONOMIC TREATMENT

Columnea bivalvis J.L. Clark & M. Amaya, sp. nov. (**Figs. 1 & 2**). TYPE: ECUADOR. TUNGURAHUA. Cantón Baños: parroquia Río Verde, sector Machay, forested trail (from Baños-Puyo road) towards Cascada de San Miguel via San Augustin, 1°23'5" S, 78°16'50"W, 1800–2200 m, 23 Dec 2000, J.L. Clark, E. Narvaez & J. Vargas 5693 (HOLOTYPE: US; ISOTYPES: COL, MO, NY, QCA, QCNE, SEL).

Differt a ceteris *Columneis* praesentia unius floris axillaris inclusi in binis bracteis amplectentibus by the presence of a single axillary flower enclosed by a pair of pendent clasping bracts.

Epiphytic vine, suffrutescent, often branched; stem terete, 0.3–0.8 cm, reddish villous (trichomes 7–10 celled), internodes 1–4 cm long. **Leaves** opposite, strongly anisophyllous in a pair, chartaceous; larger leaf with petioles 0.3–0.9 cm long, densely reddish villous; blade asymmetrical, narrow oblong to oblanceolate, 9.5–20 × 2.2–4.2 cm, base oblique, apex acuminate, margin dentate; adaxially green, golden villous (trichomes 5–7 celled) and with sparsely distributed white unicellular setulose hairs, veins not prominent; abaxially

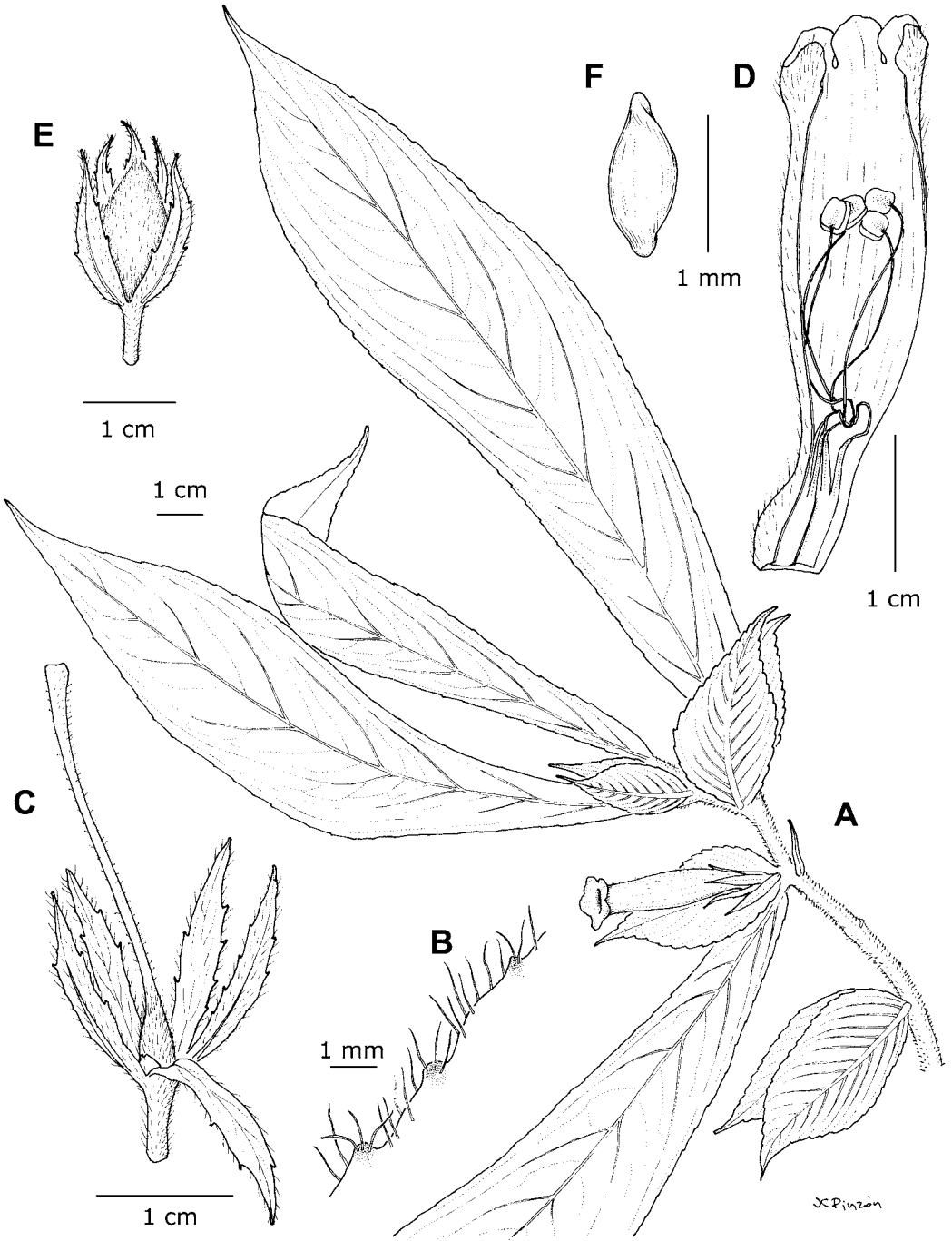


FIG. 1. *Columnea bivalvis*. A. Habit and inflorescence. B. Enlargment of larger leaf margin. C. Calyx and gynoecium. D. Corolla and androecium. E. Fruit. F. Seed.



FIG. 2. *Columnnea bivalvis*. A. One of the paired bracts removed to show uniformly yellow tubular corolla. B. Dorsiventral shoot showing pendent bracts (photos by J.L. Clark; from the live plant from which the holotype was collected, J.L. Clark, E. Narvaez & J. Vargas 5693).

green with red venation, villous (trichomes 5–7 celled), 8–10 pairs of lateral veins; smaller leaf sessile, blade asymmetrical, oblong, 1.5–2 × 0.3–0.5 cm, base oblique, apex attenuate, margin dentate, adaxially green, reddish villous (trichomes 7 celled), abaxially green, reddish villous (trichomes 7 celled). **Inflorescence** epedunculate with 1 flower per node, larger bracts persistent and paired, green with red margins, outer surface reddish villous, asymmetrical, broadly ovate, 4–4.7 × 2.5–3 cm, bracteoles 2–4, unequal in size, narrowly ovate to lanceolate, 1.2–2.5 × 0.2–1 cm, pedicel 0.2–0.4 cm long, densely villous (trichomes 4–5 celled). **Calyx** pale green; lobes 5, nearly free joined only at the base by 1 mm of their length; narrow oblong, 1.5 × 0.3 cm, margin dentate with three glandular teeth on each side, outside densely villous (trichomes 5–7 celled), inside glabrous. **Corolla** uniformly yellow, tubular, 3.7–4.5 × 0.8–1 cm, basally gibbous and slightly oblique in the calyx, gibbosity 0.4 × 0.5 cm constricted apically 0.3 cm, 0.8–1 cm at the widest part of the tube and constricted again at the limb to 0.7 cm; limb nearly actinomorphic, slightly ampliate in mid region, lobes rounded, subequal 0.3 × 0.3 cm, outside apically sericeous, glabrescent toward the base (trichomes 8–12 celled), inside glabrous. **Androecium** of 4 stamens, filaments 3.2 cm long, glabrous, basally connate for 0.5 cm; anthers oblong 2.0 × 1.3 mm, connective rectangular, 1.8 × 1.2 mm. **Nectary** a single dorsal trilobed gland. **Gynoecium** with the ovary ovoid, 0.7 × 0.3 cm, densely sericeous; style 2.5–3 cm long, laminar with glandular trichomes; stigma bilobed. **Fruit** an ovoid berry, 1.5 × 0.8 cm. **Seeds** light brown 1.8 × 0.5 mm, elliptic, and longitudinally striate.

Distribution and habitat.—*Columnnea bivalvis* is only known from two localities in the wet Andean cloud forests in eastern Ecuador between 1800 and 2350 m.

Phenology.—Flowers and fruits collected in April and December.

Columnnea bivalvis is unique among the species of *Columnnea* by having a pair of large pendent bracts that enclose a single axillary flower (Figs. 1–2). The yellow tubular flowers are almost completely enclosed by the bracts with only the throat extending beyond the bract margins. The bracts in *C. bivalvis* are superficially similar to the *Drymonia hoppii* and *D. affinis*. Although large bracts are common in many *Columnnea* species and especially those belonging to the section *Collandra*, no species is known to have large pendent bracts and dorsiventral shoots.

Columnnea bivalvis is similar to *C. medicinalis*, *C. albiflora*, and *C. eubracteata*. The latter three species differ by the presence of congested bracts compared to a pair of large pendent bracts (i.e., non-congested) in *C. bivalvis*, and by the prominent bilabiate corolla limbs compared to a nearly actinomorphic corolla limb in *C. bivalvis*.

Etymology.—The new species is named in reference to the marine and freshwater mollusca belonging to the class Bivalvia because of the resemblance to the two large rounded bracts that enclose a single axillary flower.

PARATYPE: **ECUADOR. Napo:** Km 40 from El Carmelo on road towards La Bonita, near 5 km below La Alegría, 0°35'N, 77°30'W, 2350 m, 8 Apr 1979, B. Lojtnant et al. 11930 (NY).

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